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Broad-Scale Socioeconomic Monitoring Evaluation Report for the Southern Region

Prepared by:
Allison Borchers
Economist

for:
USDA Forest Service, Southern Region

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For More Information Contact:

Chelsea Leitz
1720 Peachtree Rd NW, Suite 816N
Atlanta, Georgia 30309
404-347-7193
chelsea.leitz@usda.gov

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Economic Monitoring Indicators

Introduction

The U.S. Forest Service manages approximately 13.3 million acres of public land across thirteen southeastern states. Currently, these national forests and grasslands are covered in 19 land and resource management plans. These management plans are considered the unit of analysis for this report and are aggregated to the regional level for presentation. These public lands are administered under multiple-use management to protect and obtain the greatest benefit from all forest resources: recreation, timber, range, fish and wildlife, soil, water and minerals. These resources provide a variety of benefits and services that are valued by local communities, regional economies and visitors from across the Nation.

After developing a land management plan (forest plan), the Forest Service planning rule requires monitoring of the national forests and grasslands. This broad-scale approach is intended to provide a regional overview of changes in social and economic conditions and offer needed information and analysis for National Forest System units undertaking similar monitoring efforts. The indicators are intended to cover the national forest's economic contribution and economic and demographic conditions of the area influenced by the plans.

The focus of the indicators for economic conditions is to help identify and evaluate the available economic information regarding the monitoring question:

1. What changes are occurring in the social, cultural, and economic conditions in the areas influenced by management units in the region?

Data Sources and Methods

Measuring the human relationship with the ecological environment requires two types of indicators: those that help to understand social and economic conditions in communities near the national forests and grasslands and those that measure human uses of national forest and grassland lands and resources. Relevant indicators to understand economic conditions include population size and growth, employment, income and poverty. In addition, relevant indicators of the contribution of the management of the national forests to local economies include jobs and income, payment to states and counties, and national forest expenditures and employment.

Baseline demographic and economic data are drawn from federal sources, such as the U.S. Census Bureau and the Bureau of Economic Analysis. The El Yunque National Forest, located in Puerto Rico, at times required a different source to obtain similar indicators. Therefore, the indicators for the El Yunque National Forest may not be strictly comparable for all indicators, but every effort was made to maintain consistency. Due to the different economic and social conditions of Puerto Rico, the indicators were not always combined or averaged with the remainder of the Southern Region (Region 8) national forests and grasslands; this is noted in the relevant tables. The scale for monitoring indicators listed in table 1 is the national forest social and economic areas of influence.

The economic contribution analysis combines baseline economic data with Forest Service resource data (such as recreation visits and grazing forage consumed) to estimate employment and labor income associated with Forest Service programs, resources, and uses.

Table 1. Monitoring indicators

Indicator	Source	Suggested collection frequency	Subregion(s)	Time period(s) covered in current report
Population Change	Economic Profile System (EPS), U.S. Department of Commerce	5 years	Regionwide	2000, 2016
Rural-Urban Continuum Code	USDA Economic Research Service	5 years	Regionwide	2013
Population by Race	Economic Profile System (EPS), U.S. Department of Commerce	5 years	Regionwide	2016
Population Hispanic	Economic Profile System (EPS), U.S. Department of Commerce	5 years	Regionwide	2016
Unemployment	Economic Profile System (EPS), Bureau of Labor Statistics	5 years	Regionwide (El Yunque not included)	2016
Personal Income	U.S. Bureau of Economic Analysis, U.S. Census Bureau	5 years	Regionwide	2016
Shannon-Weaver Economic Diversity Indicator	IMPLAN	5 years	Regionwide	2016
Forest Expenditures and Employment	Forest Economic Analysis Spreadsheet Tool (FEAST)	5 years	Regionwide	2016
Payments to States and Counties	USFS	5 years	Regionwide	2017
Jobs and Income	USFS EMC, IMPLAN, Forest Economic Analysis Spreadsheet Tool (FEAST)	5 years	Regionwide	2015

IMPLAN = Impact Analysis for Planning; USFS = Unites States Forest Service; EMC = Ecosystem Management Coordination

Scale of Analysis (Area of Influence)

The national forests and grasslands in the Southern Region are made up of approximately 13.3 million acres of public land. This land is divided into 19 land and resource management plans (table 2). When possible, indicators are reported at the plans' level of aggregation, before aggregating to the regional level. However, at times due to data sources and secondary reports relied upon, different levels of aggregation may be used.

Table 2. National forest planning units in the Southern Region

Planning Unit	Grouped National Forests (when applicable)
National Forests in Alabama	Bankhead, Talladega, Tuskegee, Conecuh
Chattahoochee-Oconee National Forests	Not applicable
Cherokee National Forest	Not applicable
Kisatchie National Forest	Not applicable
Daniel Boone National Forest	Not applicable
Land Between the Lakes Research Natural Area	Not applicable
El Yunque National Forest	Not applicable
National Forests in Florida	Apalachicola, Oseola, Ocala
Francis Marion National Forest	Not applicable
George Washington National Forest	Not applicable
Jefferson National Forest	Not applicable
National Forests in Mississippi	Bienville, Chickasawhay Delta, Do Soto, Holly Springs, Homochito, Tombigbee
Croatan National Forest	Not applicable
Nantahala and Pisgah National Forests	Not applicable
Uwharrie National Forest	Not applicable
Ozark-St. Francis National Forests	Not applicable
Ouachita National Forest	Not applicable
Sumter National Forest	Not applicable
National Forests and Grasslands in Texas	Angelina, Davy Crockett, Sabine, Sam Houston, Caddo and Lyndon B. Johnson National Grasslands

Political and administrative designations (for example, county or national forest boundaries) do not necessarily correspond with economically-meaningful units. Therefore, the appropriate scale for addressing the social and economic environment in each forest plan will differ from the scales used to address other resources and topics in the monitoring report. Functional economic areas are the primary scale for the social and economic analysis. Typically, these areas are a group of counties. Reliable demographic and economic data are available at the county-level. Sub-county (for example, towns and cities) data are limited and have large margins of error, particularly in rural areas. State or national level data would mask characteristics unique to the areas surrounding the national forests and grasslands. For most of the indicators, the area of influence for each national forest unit (table 2) follows that used in the forest plan. The regional indicators are considered to be the grouping of all 279 counties within each of the 19 planning unit's areas of influence. See Appendix A. Counties by Planning Unit for a listing of counties by national forest planning unit.

Because this report is relying on readily available data and other reports which compile primary data or summarize analysis the national forest or county groupings in those reports will take precedence. For example, the Forest Service's Ecosystem Management Coordination makes available an economic contribution analysis for each national forest and grassland. Their economic contribution analysis, which estimates employment and labor income in the regional economies which result from the management and resource uses of the national forests and grasslands (see the Economic Contribution Analysis section below), uses a different set of counties, compared to the counties aggregated for the population and income tables, to define their economic area of influences, as determined by the modeling needs.

Economic Conditions in Southern Region Area of Influence

The following sections will examine current conditions related to the economic environment within the Southern Region (Region 8) forest planning units, including: population and growth and employment and income conditions. In addition, resource outputs, not addressed by other specialists, and the resulting contributions to the area of influence are reported. Where relevant, state or national conditions are presented to give context to national forest and region-level data.

Demographics

Population Dynamics

Population is an important consideration in managing natural resources. In particular, population structure (size, composition, density) and population dynamics (how the structure changes over time) are essential to describing the consequences of changes to the forest on the social environment (Seesholtz et al. 2006). Population growth can be an indicator of a regions desirability to live and work.

Many of the areas of influence surrounding the Southern Region's national forests and grasslands have seen significant population growth. Ozark-St. Francis, Chattahoochee-Oconee, National Forests in Florida, and Francis-Marion have all experienced population growth in the area of influence far greater than the national (metro and nonmetro areas) average. With the exception of four national forests (Sumter, Kiskatchie, Daniel Boone and El Yunque) all areas of influence experienced growth greater than the nonmetro national average (table 3).

Growing populations and development will place greater demand on forest resources and may affect the perceived aesthetics and uses associated with Forest Service lands. Forest management can expect to be tasked with maintaining the quality of visitors' experiences while providing forest products and cultural and recreational experiences to a greater number of people. Growing populations, specifically homes, near public lands also contributes to the costs of fighting wildland fires.

As populations grow, conflicts between local residents and national forest visitors may increase. While living close to public lands may provide residents with amenities such as convenient access to recreation and wildlife viewing, increased national forest congestion causes disamenities such as crowds, litter, and noise (Garber-Yonts 2004; Bolitzer and Netusil 2000; Moore et al. 1992). Increased population of residential areas surrounding the forest also increases the region's need for infrastructure and may place greater pressure on the national forest to provide utility right-of-ways, for example, to meet the region's growing infrastructure needs. These pressures may threaten the forest's role in contributing to sense of place and the quality of life in surrounding communities (Stedman 2003).

On average, the Southern Region saw population growth match that of the Nation as a whole. However, many of the areas of influence surrounding the Southern Region's national forests and grasslands have seen population growth above this average. And most had growth greater than the U.S. nonmetro average. This likely reflects the more urban nature of many communities surrounding Southern Region lands. This serves to highlight the pressures population growth will likely have on Forest-Service-managed lands and the need for management to address the challenges population growth can pose.

Table 3. Total population and population change, by planning unit area of influence[1]

Planning Unit	Total Population 2000	Total Population 2016	Percentage Change 2000 to 2016
National Forests in Alabama	736,578	768,901	4%
Chattahoochee-Oconee National Forests	879,200	1,081,647	23%
Cherokee National Forest	578,052	622,432	8%
Croatan National Forest	161,649	182,180	13%
Daniel Boone National Forest	445,397	447,315	0%
El Yunque National Forest	336,795	326,091	-3%
National Forests in Florida	1,232,584	1,631,303	32%
Francis Marion National Forest	966,212	1,298,705	34%
George Washington National Forest	587,309	673,028	15%
Jefferson National Forest	779,875	810,922	4%
Kiskatchie National Forest	395,644	400,706	1%
Land Between the Lakes Research Natural Area	138,430	146,896	6%
National Forests in Mississippi	1,079,419	1,136,356	5%
Nantahala and Pisgah National Forests	820,564	943,759	15%
Ouachita National Forest	545,030	597,548	10%
Ozark-St. Francis National Forests	678,374	867,283	28%
Sumter National Forest	405,695	414,921	2%
National Forests and Grasslands in Texas	1,083,846	1,429,561	32%
Uwharrie National Forest	305,600	335,760	10%
Southern Region (Region 8) (excluding El Yunque)	11,711,122	13,676,759	17%
United States	282,162,411	323,127,513	15%
United States (Nonmetro)	45,201,471	46,494,722	3%

1. The area of influence for each national forest unit follows that used in the forest plan. These areas are a group of counties surrounding the national forest units. The regional indicators are considered to be the grouping of all 279 counties within each of the 19 planning unit's areas of influence.

Data Sources: U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps; U.S. Census Bureau, 2012–2016 American Community Survey 5-Year Estimates; U.S. Census Bureau, 2000 Decennial Census.

Rural Urban Continuum Codes

There are a variety of ways to gain a better understanding of the unique strengths and challenges that exist in communities. The U.S. Department of Agriculture's Economic Research Service classifies all counties along a rural-urban continuum, which describes the degree of urbanization in a county. This is one measure of the degree to which human populations may act as a stressor on forest lands and resources. Terms such as metropolitan/nonmetropolitan status or urban/rural designation are two commonly used approaches for distinguishing counties on the basis of their geographic characteristics. However, the 2013 rural-urban continuum codes form a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. This scheme breaks county data into finer residential groups, beyond metro and nonmetro, particularly useful for understanding

trends in nonmetro areas that are related to population density and metro influence. The codes span a scale from 1 through 9. Smaller numbers are more urban, larger numbers are more rural.

Table 4, below, reports an average of the county codes by planning unit. On average, the Southern Region rural-urban continuum code nearly matches that of the Nation as a whole. The areas of influence surrounding the Southern Region's forests and grasslands vary. El Yunque National Forest is entirely urban (See Appendix E. 2013 Rural Urban Continuum Codes). Daniel Boone National Forest surrounding counties averaged 7.5 on the scale ranging to 9, and is the most rural area of influence, on average. And most had growth greater than the U.S. nonmetro average. This likely reflects the more urban nature of many communities surrounding Southern Region lands. This serves to highlight the pressures population growth will likely have on Forest-Service-managed lands and the need for management to address the challenges population growth can pose.

Each planning area is made up of a grouping of counties and most planning areas have counties spanning the rural-urban continuum codes—with exception of El Yunque which is entirely urban. Appendix E contains tables reporting the code for each county within each planning unit. The appendix tables show the distribution of the codes within a planning unit.

Table 4. Averaged county rural-urban continuum codes, by planning unit area of influence

Planning Unit	Average County Rural-Urban Continuum Code
El Yunque National Forest	1.0
National Forests in Florida	3.2
Croatan National Forest	3.3
Uwharrie National Forest	3.3
Francis Marion National Forest	3.5
Sumter National Forest	3.5
Cherokee National Forest	4.3
Chattahoochee-Oconee National Forests	4.7
George Washington National Forest	4.8
National Forests in Alabama	4.9
Jefferson National Forest	5.1
Ouachita National Forest	5.3
Kiskatchie National Forest	5.4
National Forests and Grasslands in Texas	5.5
Nantahala and Pisgah National Forests	5.6
National Forests in Mississippi	5.9
Ozark-St. Francis National Forests	6.0
Land Between the Lakes Research Natural Area	6.8
Daniel Boone National Forest	7.5
Southern Region (Region 8)	5.2
United States	5.0

Source: USDA Economic Research Service. 2013. Rural-Urban Continuum Codes. Available at https://www.ers.usda.gov/data-products/rural-urban-continuum-codes Downloaded April 6, 2020.

Race and Ethnicity

In 1994, President Clinton issued Executive Order 12898. This order directs federal agencies to focus attention on the human health and environmental conditions in minority and low-income communities. The purpose of Executive Order 12898 is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations.

According to U.S. Census data reported in table 5 and table 6, area of influences differ substantially in their racial and ethnic composition. Many national forests in the Southern Region are surrounded by significantly higher than average concentrations of Black or African American residents and Hispanic or Latino populations. This suggests that many areas surrounding national forests in the Southern Region are at risk for environmental justice issues. However, even in counties with relatively small minority populations, disproportionate impacts to vulnerable groups may occur. Forest Service management actions should consider the potential for adverse effects to all area residents, with a particular attention to any potential disproportionate impacts on minority residents, low-income residents, or both. Income and poverty is addressed in a later section of this report.

Table 5. Percentage of total population by race in planning unit area of influence

Location	White Alone	Black or African American Alone	American Indian Alone	Asian Alone	Native Hawaiian and Other Pacific Islands Alone	Some Other Race Alone	Two or More Races
National Forests in Alabama	69%	27%	1%	1%	0%	1%	2%
Chattahoochee-Oconee National Forests	86%	8%	0%	1%	0%	3%	2%
Cherokee National Forest	94%	2%	0%	1%	0%	1%	2%
Croatan National Forest	77%	16%	1%	2%	0%	2%	3%
Daniel Boone National Forest	96%	1%	0%	0%	0%	0%	1%
El Yunque National Forest *	58%	13%	0%	1%	0%	27%	2%
National Forests in Florida	79%	15%	0%	2%	0%	2%	3%
Francis Marion National Forest	67%	28%	0%	1%	0%	1%	2%
George Washington National Forest	92%	4%	0%	1%	0%	1%	2%
Jefferson National Forest	92%	4%	0%	2%	0%	0%	1%
Kiskatchie National Forest	63%	32%	1%	1%	0%	1%	2%
Land Between the Lakes Research Natural Area	93%	4%	0%	1%	0%	0%	2%
National Forests in Mississippi	66%	30%	0%	1%	0%	1%	1%
Nantahala and Pisgah National Forests	90%	4%	1%	1%	0%	2%	2%
Ouachita National Forest	83%	7%	2%	2%	0%	3%	3%
Ozark-St. Francis National Forests	86%	4%	1%	2%	1%	4%	3%
Sumter National Forest	67%	28%	0%	0%	0%	2%	2%
National Forests and Grasslands in Texas	83%	10%	0%	1%	0%	3%	2%
Uwharrie National Forest	86%	9%	0%	1%	0%	2%	2%

Location	White Alone	Black or African American Alone	American Indian Alone	Asian Alone	Native Hawaiian and Other Pacific Islands Alone	Some Other Race Alone	Two or More Races
Southern Region(Region 8) (excluding El Yunque)	80%	14%	1%	1%	0%	2%	2%
United States (Nonmetro)	88%	6%	2%	1%	0%	1%	2%

Note: The American Community Survey is based on a survey and subject to error. Some data points in this table have lower accuracy due to small sample sizes, particularly in rural areas. Therefore, some estimates should be interpreted with caution.

Data Sources: U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps; U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Table 6. Percentage of total population Hispanic or Latino, by planning unit area of influence

Planning Unit	Hispanic or Latino (of any race)
National Forests in Alabama	3%
Chattahoochee-Oconee National Forests	13%
Cherokee National Forest	3%
Croatan National Forest	6%
Daniel Boone National Forest	1%
El Yunque National Forest *	99%
National Forests in Florida	9%
Francis Marion National Forest	5%
George Washington National Forest	4%
Jefferson National Forest	2%
Kiskatchie National Forest	3%
Land Between the Lakes Research Natural Area	2%
National Forests in Mississippi	4%
Nantahala and Pisgah National Forests	6%
Ouachita National Forest	7%
Ozark-St. Francis National Forests	11%
Sumter National Forest	5%
National Forests and Grasslands in Texas	18%
Uwharrie National Forest	9%
Southern Region (Region 8) (excluding El Yunque)	7%
United States (Nonmetro)	6%

Data Sources: U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps; U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Economy

This section highlights economic trends in the areas of influence for the Southern Region national forest planning units. Income and unemployment are two important considerations to understanding local economic conditions and therefore how federal land management impacts local economies.

Unemployment

The unemployment rate is a commonly cited and watched figure helping people to understand local and national economic conditions. It provides insight into the correspondence between residents' skills and employment opportunities. The unemployment rate is the percentage of the labor force that is unemployed. Though it may seem full-employment is often the goal, structural unemployment (mismatch between labor skills and available jobs within a region) and frictional unemployment (people moving or transitioning employment) cause rates to remain above zero even in times of economic prosperity. The existence of structural and frictional unemployment implies that there is an inherent "natural" rate of unemployment. The natural rate of unemployment is believed to fall somewhere between 5 and 6 percent and allows workers to move between jobs and industries without signaling broad economic distress.

The Southern Region planning area average falls between the national average and national nonmetro average (table 7). There is no indication of any particularly special circumstances within the region relative to the Nation. Generally, the unemployment rate for the national forests and grasslands' area of influence in the Southern Region is also within an acceptable range. Three planning areas—Kiskatchie National Forest, National Forests in Alabama, and Daniel Boone National Forest—have unemployment rates above 6 percent (table 7). These regions may be more sensitive to changes in national forest management that impacts the local economy.

Table 7. Unemployment rate in planning unit area of influence, 2016

Planning Unit	Unemployment Rate
National Forests in Alabama	6.5%
Chattahoochee-Oconee National Forests	5.3%
Cherokee National Forest	5.4%
Croatan National Forest	5.2%
Daniel Boone National Forest	7.2%
El Yunque National Forest	23.1%
National Forests in Florida	4.9%
Francis Marion National Forest	5.0%
George Washington National Forest	3.9%
Jefferson National Forest	4.8%
Kiskatchie National Forest	6.8%
Land Between the Lakes Research Natural Area	5.6%
National Forests in Mississippi	6.0%
Nantahala and Pisgah National Forests	4.6%
Ouachita National Forest	4.4%
Ozark-St. Francis National Forests	3.5%
Sumter National Forest	5.3%
National Forests and Grasslands in Texas	5.4%

Planning Unit	Unemployment Rate
Uwharrie National Forest	4.9%
Southern Region (Region 8)** (excluding El Yunque)	5.1%
United States	4.9%
United States (Nonmetro)	5.4%

**Reported as a population weighted average of Forest-level unemployment rate. Some counties are double counted if they are included in more than one Forest impact area.
Note: Unemployment Trends, by forest planning unit included in an appendix.
Data Source: U.S. Department of Labor. 2018. Bureau of Labor Statistics, Local Area Unemployment Statistics, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps; U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates.

Income and Poverty

Per capita income is an indicator of economic well-being. For management, income is an important consideration because low income populations may be more vulnerable to any adverse effects that result from changes to forest management. For example, if people must travel farther to access recreation sites this increases the cost to use these recreation sites and this may have a disproportionate effect on low income households. Table 8 provides per capita income and the percent of the population below poverty levels for each national forest unit and the aggregate region. For reference, nonmetro U.S. data are also listed.

The Southern Region's per capita income, $38,200, is similar to the nonmetro national average, $39,000, with less than $1,000 difference between the two estimates. The planning units range from a minimum of $34,200 per capita in the National Forests of Alabama area of influence to $47,200 per capita in the Ozark-St. Francis area of influence. The region has many national forest planning units with per capita incomes below the regionwide average. In fact, less than half—eight of the 18 planning areas—have per capita incomes greater than the region average.

Similarly, the percent of population below poverty level is slightly higher for the Southern Region than the national nonmetro average—18 percent compared to 15 percent, respectively. The communities surrounding some national forests experience higher poverty levels (table 8). Poverty is an important indicator of both economic and social well-being. Individuals with low incomes are more vulnerable to a number of hardships which may negatively affect their health, cognitive development, emotional well-being, and school achievement. In general, low income individuals tend to rely more heavily on natural resources and depend more directly on National Forest System lands for sustenance and home heating. Communities or households with low incomes will be more sensitive to management actions which impact costs to use or access forest resources, for example. Because individuals experiencing poverty will be more vulnerable to changes in the management of local resources, it is important for national forest managers to understand how these forest users may be affected by changes or restrictions to forest uses.

Table 8. Per capita income and population poverty levels in the planning unit area of influence, 2016

Planning Unit	Per Capita Income	Percent of Population below Poverty Level
National Forests in Alabama	$ 34,211	21%
Chattahoochee-Oconee National Forests	$ 36,464	18%
Cherokee National Forest	$ 37,054	19%
Croatan National Forest	$ 44,153	15%
Daniel Boone National Forest	$ 30,908	29%

Planning Unit	Per Capita Income	Percent of Population below Poverty Level
El Yunque National Forest[1]	$ 9,968	47%
National Forests in Florida	$ 39,664	17%
Francis Marion National Forest	$ 41,187	17%
George Washington National Forest	$ 40,378	11%
Jefferson National Forest	$ 39,750	15%
Kiskatchie National Forest	$ 38,961	23%
Land Between the Lakes Research Natural Area	$ 36,928	18%
National Forests in Mississippi	$ 34,252	23%
Nantahala and Pisgah National Forests	$ 37,623	18%
Ouachita National Forest	$ 36,141	19%
Ozark-St. Francis National Forests	$ 47,198	17%
Sumter National Forest	$ 34,872	21%
National Forests and Grasslands in Texas	$ 44,573	16%
Uwharrie National Forest	$ 35,575	17%
Southern Region (Region 8)	$ 38,237	18%
United States (Nonmetro)	$ 39,024	13%

1. Estimates use different data sources and are not strictly comparable, although efforts were made to make them comparable.

Sources: U.S. Department of Commerce. 2017. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C., and U.S. Department of Commerce. 2017. Census Bureau, American Community Survey Office, Washington, D.C. reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps. Downloaded May 24, 2018; U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates, available at https://factfinder.census.gov. Downloaded June 7, 2018.

Economic Diversity

Diversified economies—those with employment in a variety of industries—are more resilient to changes in a single sector. While some individuals will still experience periods of unemployment, economic diversification helps to lessen the potential of economic collapse due to the decline of one industry. One measure of economic diversity is the Shannon-Weaver index, which is based on the number of sectors present in an economy and the size of those sectors. In the 13-state Southern Region, the diversity index is 0.77 out of 1, which is equivalent to the national-level diversity index (table 9). Therefore, the Southern Region is approximately as economically diverse as the Nation overall. There is minimal variation in this index at the planning unit level. For comparison, Utah's economic diversity index is 0.77 (IMPLAN 2014). The county-level diversity indices likely reveal a more substantial amount of variation within the planning area counties; however, that level of detail is not included in this report.

Determining the degree of specialization in an economy is important for decisionmakers, particularly when the dominant industry can be affected by changes in policy. For Forest Service decisionmakers, this is likely to be the case where the forest products industry or the tourism and recreation industries, for instance, are reliant on the local national forests. In many areas surrounding Southern Region national forests, local employment will reflect government presence due to public land management, a retiree population that consumes health and social services, and amenities that attract tourists who support the retail trade and accommodation and food services sectors.

Table 9. Shannon-Weaver economic diversity index by planning area of influence, 2016

Planning Unit	Shannon-Weaver Diversity Index
National Forests in Alabama	0.760
Chattahoochee-Oconee National Forests	0.763
Cherokee National Forest	0.750
Croatan National Forest	0.686
Daniel Boone National Forest	0.737
El Yunque National Forest	Not applicable
National Forests in Florida	0.729
Francis Marion National Forest	0.740
George Washington National Forest	0.762
Jefferson National Forest	0.761
Kiskatchie National Forest	0.744
Land Between the Lakes Research Natural Area	0.731
National Forests in Mississippi	0.746
Nantahala and Pisgah National Forests	0.755
Ouachita National Forest	0.751
Ozark-St. Francis National Forests	0.742
Sumter National Forest	0.770
National Forests and Grasslands in Texas	0.739
Uwharrie National Forest	0.758
Southern Region (Region 8) (entire states excluding El Yunque)	0.772
United States	0.776

Source: IMPLAN 2016

Payments to States and Counties

The national forests and grasslands make payments to states and local governments through three programs. These are federal payments in-lieu of taxes and Forest Service county payments—the Secure Rural Schools Act or the federal 25 percent fund and payments to grassland counties via the Bankhead-Jones Farm Tenant Act. Payments in-lieu of taxes are not reported here. While local governments receive these payments, they are largely outside the control of national forest management. Generally larger payments reflect larger acres under federal management.

Forest Service County Payments

Counties receive revenue sharing payments from commercial activities on federal lands, such as oil and gas leasing, livestock grazing, and timber harvesting. For national forests, beginning in 1908 the payment was 25 percent of the moneys received annually. Since 2008, the payments are based on 25 percent of the 7-year rolling average annual receipts. These payments are commonly called 25-percent payments. However, in 2000, the Secure Rural Schools and Community Self-determination Act was passed which offered a guaranteed source of payments that was not tied to annual commercial revenue on national forests. The vast majority of counties in the planning areas of influence in the Southern Region elected to receive the Secure Rural Schools Act State Payment share in fiscal year 2017 and not the 25-percent payments.

Table 10 shows the national forest unit and per-acre revenue from Secure Rural School and Forest Service 25-percent payments in fiscal year 2017. Payments to counties with national grasslands are made through the Bankhead-Jones Farm Tenant Act. These payments are similar to 25-percent payments but are not reflected in table 10.

The Secure Rural Schools Act has periodically lapsed due to not being reauthorized by Congress. Without reauthorization these payments revert to 25-percent payments. The 25-percent payments are, in many cases, are significantly smaller than the Secure Rural Schools Act payments.

Table 10. Secure Rural Schools Act Payments and 1908 Act 25 Percent Payments, 2017

National Forest	Acres	Total Payment	Average Payment Per Acre
National Forests in Alabama	670,804	1,572,325	$2.34
Chattahoochee-Oconee National Forests	867,841	1,358,396	$1.57
Cherokee National Forest	657,324	908,446	$1.38
Kisatchie National Forest	608,565	1,556,216	$2.56
Daniel Boone National Forest	711,230	1,377,585	$1.94
Land Between the Lakes Research Natural Area	171,251	167,416	$0.98
El Yunque National Forest	28,709	128,632	$4.48
National Forests in Florida	1,203,413	2,303,596	$1.91
Francis Marion National Forest	260,495	411,491	$1.58
George Washington National Forest	1,067,079	776,193	$0.73
Jefferson N National Forest F	726,778	831,087	$1.14
National Forests in Mississippi *	1,191,094	4,764,452	$4.00
Croatan National Forest	161,325	148,190	$0.92
Nantahala and Pisgah National Forests	1,043,297	1,354,315	$1.30
Uwharrie National Forest	51,398	75,615	$1.47
Ozark-St. Francis National Forests	22,827	71,717	$3.14
Ouachita National Forest	1,785,583	4,480,368	$2.51
Sumter National Forest	372,972	1,149,341	$3.08
National Forests and Grasslands in Texas **	639,959	2,051,063	$3.20
Southern Region(Region 8) Total	12,241,944	25,486,446	$2.08

*Chichasaway is not included. **Payments to counties with national grasslands (for example, the Caddo and Lyndon B. Johnson) are made through the Bankhead-Jones Farm Tenant Act, which is not included in this table.
Source: USDA Forest Service ASR: Final Payment Detail Report PNF (ASR-10-02) Available at: https://www.fs.usda.gov/main/pts/securepayments/projectedpayments Downloaded May 23, 2018.

Payments to states and local government support public services in communities near the national forests and grasslands and contribute to employment and labor income in the counties that surround the national forests and grasslands. Some of the least affluent areas—for example, the National Forests in Mississippi area of influence—receive the largest payments from the national forests. Forest Service payments to local governments in sparsely populated and low-income areas are likely to be particularly meaningful, since these areas typically get less revenue from property, sales, and income taxes to fund local government operations.

The employment and labor income contributions of Secure Rural Schools Act and other county payments, such as payments in lieu of taxes, are incorporated into the Economic Contribution Analysis section of this report.

Forest Operations

National forests and grasslands operations and infrastructure include personnel, program activities, roads, and facilities that contribute to the use and enjoyment of the forest.

The national forests and grasslands in the Southern Region combined annual budget (including expenditures and salaries and fire expenditures) was $310.9 million in fiscal year 2016 (table 11).

Table 11. Expenditure by national forest planning unit, fiscal year 2016

Planning Unit	Salary	Nonsalary
National Forests in Alabama	$1,742,580.92	$7,186,656.96
Chattahoochee-Oconee National Forests	$10,005,183.81	$5,269,440.15
Cherokee National Forest	$11,739,961.80	$7,158,868.86
Kisatchie National Forest	$12,722,862.62	$5,903,195.28
Daniel Boone National Forest	$10,582,339.08	$4,599,586.71
El Yunque National Forest	Not applicable	Not applicable
Land Between the Lakes Research Natural Area	$4,401,967.73	$8,205,400.21
National Forests in Florida	$15,507,263.20	$14,314,412.37
Francis Marion and Sumter National Forests	$11,767,310.36	$7,121,841.05
George Washington & Jefferson National Forests	$16,339,132.90	$9,825,710.84
National Forests in Mississippi	$17,640,918.59	$10,722,997.83
National Forests in North Carolina	$16,726,864.58	$13,162,510.27
Ozark-St. Francis National Forests	$15,617,260.62	$10,055,547.41
Ouachita National Forest	$19,441,214.58	$14,177,367.85
National Forests and Grasslands in Texas	$12,123,554.61	$6,881,347.32
Southern Region (Region 8)	$186,358,415.40	$124,584,883.09

Source: U.S. Forest Service, Forest Economic Analysis Spreadsheet Tool (FEAST), version Aphelia 10/24/2017.

An average of 60 percent of budgets was spent on salaries in fiscal year 2016. The remaining 40 percent was spent on non-salary expenditures. These expenditures support programs that contribute to recreation opportunities, providing and maintaining wildlife habitat, and ecosystem restoration projects, to name a few.

The national forests and grasslands' operational expenditures contribute to economic activity in the communities that surround the national forests and grasslands. Forest Service employees live in these communities and spend their income on housing, food, and a variety of other local goods and services. The national forest's non-salary expenditures generate economic activity in businesses that supply goods and services to support Forest Service programs. The economic contributions to the local economies of the national forests and grasslands expenditures are captured in the Economic Contribution Analysis section of this report.

Economic Contribution Analysis

The economic contribution analysis estimates the role of Forest Service resources, uses, and management activities on employment and income in the communities that surround national forests and grasslands.

The role of the national forests and grasslands in their respective regional economies was modeled with IMPLAN Professional 3.1 software using 2015 data. IMPLAN is an input-output model, which estimates the economic consequences of activities, projects, and policies on a region. Input-output analysis represents linkages between sectors in an economy. For example, forest visitors spend money on accommodations and food. Accommodation and food service businesses buy supplies from other businesses. The employees of these firms spend their earnings on a variety of goods and services. These transactions result in direct, indirect, and induced effects in the regional economy, respectively. IMPLAN uses Forest Service data on expenditures and resource uses to estimate the economic consequences of national forests and grasslands management.

The national forests and grasslands area of influence for these economic contribution analysis are not the same as those considered for the indicators above. For these analyses an economic area of encompasses a contiguous set of counties where direct expenditures are made by the following groups: recreationists, range permittees, timber harvesters, timber processors, minerals and energy producers and local government (from revenue sharing and payments in lieu of taxes). These economic areas of influence include a larger collection of counties than those considered above.

Employment by Program Area

The extraction and consumption of forest products (for example, timber, minerals, and forage), recreation visitors, and national forest expenditures (for example, equipment and salaries) all contribute to the economic activity in the region. Based on IMPLAN analysis, table 12 shows the number of jobs attributable to various Forest Service program areas. Local and non-local recreation visitors account for nearly 50 percent of all jobs, contributing a total approximate 14,229 of the 24,268 jobs on an average annual basis. The Forest Service expenditures category captures both salary and non-salary expenditures. Therefore, this category includes national forests and grasslands employees, forest contractors and suppliers, as well as employees of businesses where national forest employees spend their household income. The jobs contributed by Forest Service expenditures make up 19 percent of the total contribution.

Table 12. Total number of jobs contributed by program area, Southern Region, 2015

Program Area	Jobs
Recreation	14,229
Grazing	80
Timber	4,208
Minerals	174
Payments to States/Counties	1,038
Forest Service Expenditures	4,536
Total Southern Region (Region 8) Forest Management	24,268

Note: The reported figures are a summation of the analysis for each planning unit. The region is not modeled as a whole. Forest-planning unit level detail is included in this report's appendix.

The job estimates serve as an annual average, but they do not differentiate between the provision of full-time, part-time, or seasonal work. Due to changes in the methods used to define the areas of influence 2015 estimates are not strictly comparable to earlier year estimates.

Source: Economic Contributions at a Glance, 2015 via personal communications with Susan Winter, WO EMC, May 13, 2018; 2014 reports available at https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml.

Labor Income by Program Area

Table 13 displays labor income attributable to various Forest Service programs. The jobs estimates, presented above, offer an incomplete picture of the national forests and grasslands' contributions to the regional economies. Labor income estimates help to clarify the role of forest management in supporting livelihoods in communities near the national forests and grasslands. However, not all jobs are equivalent. Whereas table 12 indicates program area contributions to regional employment, table 13 demonstrates the contribution in terms of labor income. Combined, these indicators reveal that jobs associated with mining on national forests or grasslands pay more, on average, than jobs associated with livestock grazing or Forest Service expenditures.

Table 13. Total labor income contributed by program area, Southern Region, 2015

Program Area	Total Labor Income (thousands of 2015 dollars)
Recreation	$454,544
Grazing	$1,162
Timber	$216,010
Minerals	$17,657
Payments to States/Counties	$50,441
Forest Service Expenditures	$271,820
Total Southern Region (Region 8) Forest Management	$1,011,632

Note: The reported figures are a summation of the analysis for each planning unit. The region is not modeled as a whole.

Source: Economic Contributions at a Glance, 2015 via personal communications with Susan Winter, WO EMC, May 13, 2018; 2014 reports available at https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml

Note: Due to changes in the methods used to define the areas of influence 2015 estimates are not strictly comparable to earlier year estimates.

Summary and Conclusion

Based on the review, population and poverty are two indicators worth noting at this time. With some exceptions, the unemployment rate for the national forests and grasslands' area of influence in the Southern Region is within the "natural" range of unemployment (table 7). Areas with higher unemployment may be more sensitive to changes in national forest management that impacts the local economy. However, the percentage of population below poverty level is slightly higher for the Southern Region than the national non-metro average—18 percent compared to 15 percent. The communities adjacent to some national forests experienced even higher poverty levels (table 8).

Individuals with low incomes are more vulnerable to a number of hardships which may negatively affect their health, cognitive development, emotional well-being, and school achievement. Communities or households with low incomes will be more sensitive to management actions which impact costs to use or access forest resources, for example. Since these individuals will be more vulnerable to changes in the management of local resources, it is important for forest managers to understand how these national forest users may be affected by changes or restrictions to forest uses.

Many of the areas of influence surrounding the Southern Region's forests and grasslands have seen significant population growth (table 3). Managing the demands that population growth places on public lands will be a challenge that personnel in the Southern Region will need to continually address into the future.

Finally, recreation-related employment is substantial relative to other resource areas in the Southern Region. Recreation visitor spending is the largest single source of economic activity associated with the Southern Region's national forests and grasslands. Managing sustainable outdoor recreation opportunities with decreasing budgets and increasing population is a challenge the Region is already confronting through their sustainable recreation effort. This collaboration with communities, tourism providers, recreation enthusiasts, and other stakeholders is intended to maintain recreation experiences that are economically beneficial, as well as, socially and ecologically sustainable in the long term.

Table 14. Socioeconomic summary of findings

Monitoring Question	Year Updated	Do monitoring results demonstrate intended progress or trend toward Southern Region targets?	Based on the evaluation of monitoring results, may changes be warranted?	If a change may be warranted, where may the change be needed?
What changes are occurring in the social, cultural, and economic conditions in the areas influenced by management units in the region?	2018 (First Evaluation) 2020	Yes: Forest management considers impact of population and population growth Yes: Forest management addressing sustainable recreation needs Yes: Forest management contributes to local economies	No	Plan Monitoring Program Forest Plans Management Activities

Areas for Future Consideration

The data gathered in this document was guided both by relevant, interesting, and important indicators, but also ease of data availability.

Payments in-lieu of taxes are not reported above but are easily available. As a single data point, it is questionable whether this is interesting or not from a forest management standpoint—forest management does not have direct control over these payments. However, as a longer term time trend it may be informative to see if these payment amounts are trending in any direction, or are highly variable. These payments may be significant to some communities and seeing the changes could help understand communities' sensitivities to changes in national forest management.

Similarly, expanding other indicators above to show time trends should be informative. Similar to the current comparisons to national averages, comparing regional and local trends to state and national trends helps understand how an area is responding to economic and social changes.

Employment by sector, and relative size of the sector, is an area which may be of interest in future iterations. This report choose to report the Shannon-Weaver Diversity Index as a single measure of economic diversity. A broader overview of employment by sectors could illustrate the size and importance of the timber sector, for example, and therefore help understand the relative importance of forest product removal and changing relationship to public lands. However, some linkages are harder to make. The recreation program, as mentioned above, make a significant contribution to the local economies, but sectors related to tourism and recreation are more dispersed throughout the economy and national forest lands only one component providing these services. Regardless, a thoughtful assessment of sector employment trends is an area which is considered in forest specific analysis.

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Appendix A. Counties by Planning Unit

These are the counties considered for all the indicators *except* the economic contribution analysis. The economic contribution analysis uses a larger more comprehensive set of counties for each planning unit as determined by the modeling needs.

Planning Unit	State	Counties
National Forests in Alabama	Alabama:	Bibb, Calhoun, Cherokee, Chilton, Clay, Cleburne, Covington, Dallas, Escambia, Franklin, Hale, Lawrence, Macon, Perry, Talladega, Tuscaloosa, Winston
Chattahoochee-Oconee National Forests	Georgia:	Banks, Catoosa, Chattooga, Dawson, Fannin, Floyd, Gilmer, Gordon, Greene, Habersham, Hall, Jasper, Jones, Lumpkin, Morgan, Murray, Oconee, Oglethorpe, Putnam, Rabun, Stephens, Towns, Union, Walker, White, Whitfield
Cherokee National Forest	Tennessee:	Carter, Cocke, Greene, Johnson, McMinn, Monroe, Polk, Sullivan, Unicol, Washington
Cherokee National Forest	North Carolina:	Ashe
Kisatchie National Forest	Louisiana:	Claiborne, Lincoln, Jackson, Winn, Grent, Rapdes, Vernon, Natchitoches, Red River, Bienville, Webster
Kisatchie National Forest	Tennessee:	Stewart, Henry
Daniel Boone National Forest	Kentucky:	Bath, Clay, Estill, Harlan, Jackson, Knox, laurel, Lee, Leslie, McCreary, Menifee, Morgan, Owsley, Perry, Powell, Pulaski, Rockcastle, Rowan, Wayne, Whitley, Wolfe
Land Between the Lakes Research Natural Area	Kentucky:	Lyon, Trigg, Calloway, Livingston, Marshall
El Yunque National Forest	Puerto Rico (municipalities):	Canovanas, Ceiba, Fajardo, Humacao, Juncos, Las Piedras, Luquillo, Rio Grande, Naguabo
National Forests in Florida	Florida:	Franklin, Leon, Liberty, Wakulla, Okaloosa, Santa Rosa, Walton, Lake, Marion, Putnam, Baker, Columbia
Francis Marion National Forest	South Carolina:	Berkeley, Charleston, Clarendon, Dorchester, Georgetown, Horry, Orangeburg, Williamsburg
George Washington National Forest	Virginia:	Alleghany, Amherst, Augusta, bath, Botetourt, Fredrick, highland, Nelson, Page, Rockbridge, Rockingham, Shenandoah, Warren
George Washington National Forest	West Virginia:	Hampshire, Hardy, Monroe, Pendleton

Planning Unit	State	Counties
Jefferson National Forest	Virginia:	Bedford, Bland, Botetourt, Carroll, Dickenson, Giles, Grayson, Lee, Montgomery, Pulaski, Roanoke, Rockbridge, Scott, Smyth, Tazewell, Washington, Wise , Wythe
National Forests in Mississippi	Mississippi:	Jasper, Newton, Scott, Smith, Forrest, George, Greene, Harrison, Jackson, Pearl River, Perry, Stone, Jones, Wayne, Issaquena, Sharkey, Benton, Lafayette, Marshall, Tippah, Union, Yalobusha, Adams, Amite, Copiah, Franklin, Jefferson, Lincoln, Wilkinson, Chickasaw, Choctaw, Oktibbeha, Pontotoc, Winston
Croatan National Forest	North Carolina:	Carteret, Craven, Jones
Nantahala and Pisgah National Forests	North Carolina:	Cherokee, Clay, Graham, Swain, Macon, Jackson, Haywood, Transylvania, Henderson, Buncombe, Madison, Yancey, McDowell, Burke, Caldwell, Watauga, Avery, Mitchell
Uwharrie National Forest	North Carolina:	Montgomery, Randolph, Davidson
Ozark-St. Francis National Forests	Arkansas:	Baxter , Benton , Conway , Crawford, Franklin, Johnson, Logan, Madison, Marion, Newton, Pope, Searcy, Stone, Van Buren, Washington, Yell, Lee, Philips
Ouachita National Forest	Arkansas:	Ashley, Garland, Hot Spring, Howard, Logan, Montgomery, Perry, Pike, Polk, Saline, Scott, Sebastian, Yell
Ouachita National Forest	Oklahoma:	LeFlore, McCurtain
Sumter National Forest	South Carolina:	Abbeville, Chester, Edgefield, Fairfield, Greenwood, Laurens, McCormick, Newberry, Oconee, Saluda, Union
National Forests and Grasslands in Texas	Texas:	Angelina, Fannin, Houston, Jasper, Montague, Montgomery, Nacogdoches, Newton, Sabine, San Augustine, San Jacinto, Shelby, Trinity, Tyler, Walker, Wise

Appendix B. Total Number of Jobs Contributed, by Resource Program, 2015

Planning Unit	Recreation	Grazing	Timber	Minerals	Payments to States and Counties	Forest Service Expenditures	Total Forest Management
Chattahoochee-Oconee National Forests	1,364	6	67	0	66	253	1,756
Cherokee National Forest	566	0	49	0	35	268	918
Daniel Boone National Forest	597	0	62	3	50	239	952
El Yunque National Forest	661	0	281	0	1	55	997
Francis Marion and Sumter National Forests	197	0	334	0	38	281	850
George Washington and Jefferson National Forests	776	33	197	1	102	378	1,487
Kisatchie National Forest	80	1	480	4	47	291	903
Land Between the Lakes Research Natural Area	544	0	45	0	12	120	722
National Forests in Alabama	166	0	224	0	49	264	702
National Forests in Florida	485	2	148	0	88	463	1,187
National Forests in Mississippi	467	0	997	0	108	421	1,993
National Forests in North Carolina	6,064	0	95	2	116	402	6,679
National Forests and Grasslands in Texas	446	15	270	125	62	248	1,167
Ouschita National Forest	727	11	548	0	157	462	1,905
Ozark St Francis National Forests	1,089	12	411	39	107	391	2,050
Southern Region (Region 8)	16,808	80	4,208	174	1,038	4,536	24,268

Source: Economic Contributions at a Glance, 2015 via personal communications with Susan Winter, WO EMC, May 13, 2018; 2014 reports available at https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml

Appendix C. Total Labor Income Contributed, by Resource Program, 2015

Planning Unit	Recreation	Grazing	Timber	Minerals	Payments to States and Counties	Forest Service Expenditures	Total Forest Management
Chattahoochee-Oconee National Forests	$46,869	$88	$3,359	$0	$3,395	$15,800	$69,510
Cherokee National Forest	$16,608	$0	$2,117	$0	$1,591	$13,552	$33,868
Daniel Boone National Forest	$17,831	$0	$2,544	$187	$2,254	$13,438	$36,254
El Yunque National Forest	$19,245	$0	$16,476	$0	$42	$3,784	$39,547
Francis Marion and Sumter National Forests	$6,516	$0	$16,246	$0	$1,894	$17,519	$42,175
George Washington and Jefferson National Forests	$26,504	$434	$8,111	$96	$5,428	$22,810	$63,382
Kisatchie National Forest	$2,510	$10	$24,051	$248	$2,204	$18,159	$47,181
Land Between the Lakes Research Natural Area	$14,863	$0	$1,751	$0	$540	$6,195	$23,348
National Forests in Alabama	$5,658	$0	$11,960	$0	$2,515	$16,441	$36,574
National Forests in Florida	$15,975	$33	$7,660	$0	$4,287	$27,265	$55,219
National Forests in Mississippi	$15,463	$1	$48,787	$0	$5,107	$25,671	$95,029
National Forests in North Carolina	$192,534	$0	$4,519	$104	$5,869	$24,174	$227,200
National Forests and Grasslands in Texas	$19,355	$237	$17,136	$15,428	$3,662	$17,386	$73,206
Ouschita National Forest	$20,067	$175	$28,205	$8	$6,706	$27,552	$82,714
Ozark St Francis National Forests	$34,546	$184	$23,088	$1,586	$4,947	$22,074	$86,425
Southern Region (Region 8)	$909,088	$1,162	$216,010	$17,657	$50,441	$271,820	$1,011,632

Source: Economic Contributions at a Glance, 2015 via personal communications with Susan Winter, WO EMC, May 13, 2018; 2014 reports available at https://www.fs.fed.us/emc/economics/contributions/at-a-glance.shtml

Appendix D. Unemployment Rate

Location	1990	2000	2010	2013	2014	2015	2016	2017
National Forests of Alabama	8.0%	5.2%	11.6%	8.0%	7.4%	6.6%	6.5%	5.0%
Chattahoochee-Oconee	6.0%	3.4%	10.8%	8.2%	7.0%	5.8%	5.3%	4.6%
Cherokee National Forest	6.2%	4.6%	10.7%	8.6%	7.2%	6.1%	5.4%	4.4%
Croatan	4.4%	4.1%	10.3%	8.3%	6.6%	6.0%	5.2%	4.6%
Daniel Boone National Forest	9.2%	5.4%	12.4%	11.4%	9.0%	7.4%	7.2%	6.9%
National Forests of Florida	5.7%	3.6%	10.4%	7.0%	6.1%	5.4%	4.9%	4.1%
Francis Marion	4.7%	4.0%	11.0%	7.7%	6.6%	6.3%	5.0%	4.2%
George Washington	6.0%	2.3%	7.8%	5.8%	5.2%	4.5%	3.9%	3.7%
Jefferson	7.4%	3.2%	8.2%	6.7%	6.0%	5.1%	4.8%	4.4%
Kiskatchie	6.4%	5.8%	8.5%	7.8%	7.4%	7.3%	6.8%	6.0%
Land Between the Lakes	6.7%	4.7%	10.7%	8.6%	7.0%	5.8%	5.6%	5.4%
National Forests of Mississippi	7.7%	5.3%	10.3%	8.5%	7.5%	6.5%	6.0%	5.2%
Nantahala-Pisgah National Forest	4.4%	3.5%	10.7%	7.6%	5.8%	5.3%	4.6%	4.1%
Ouachita	7.1%	4.0%	8.3%	7.5%	6.1%	5.3%	4.4%	3.9%
Ozark-St. Francis	5.9%	3.6%	7.5%	6.6%	5.4%	4.4%	3.5%	3.2%
Sumter	6.4%	4.2%	12.8%	8.8%	7.1%	6.5%	5.3%	4.5%
National Forests in Texas	6.0%	4.6%	8.6%	6.6%	5.4%	5.0%	5.4%	4.9%
Uwharrie	3.7%	3.3%	12.2%	8.4%	6.4%	5.7%	4.9%	4.3%
United States (Nonmetro)	6.7%	4.6%	9.9%	7.7%	6.4%	5.7%	5.4%	4.7%

Data Sources: U.S. Department of Labor. 2018. Bureau of Labor Statistics, Local Area Unemployment Statistics, Washington, D.C., reported by Headwaters Economics' Economic Profile System, headwaterseconomics.org/eps.

Appendix E. 2013 Rural Urban Continuum Codes

The 2013 rural-urban continuum codes form a classification scheme that distinguishes metropolitan counties by the population size of their metro area, and nonmetropolitan counties by degree of urbanization and adjacency to a metro area. This scheme allows county data to be broken into finer residential groups, beyond metro and nonmetro, particularly for the analysis of trends in nonmetro areas that are related to population density and metro influence.

Table 15. Description of 2013 rural-urban continuum codes

County code	Description
Metro County Code 1	Counties in metro areas of 1 million population or more
Metro County Code 2	Counties in metro areas of 250,000 to 1 million population
Metro County Code 3	Counties in metro areas of fewer than 250,000 population
Nonmetro County Code 4	Urban population of 20,000 or more, adjacent to a metro area
Nonmetro County Code 5	Urban population of 20,000 or more, not adjacent to a metro area
Nonmetro County Code 6	Urban population of 2,500 to 19,999, adjacent to a metro area
Nonmetro County Code 7	Urban population of 2,500 to 19,999, not adjacent to a metro area
Nonmetro County Code 8	Completely rural or less than 2,500 urban population, adjacent to a metro area
Nonmetro County Code 9	Completely rural or less than 2,500 urban population, not adjacent to a metro area

Data Sources: U.S.D.A. Economic Research Service. Available https://www.ers.usda.gov/data-products/rural-urban-continuum-codes

Table 16. 2013 rural-urban continuum codes, National Forests in Alabama

County	Rural-Urban Continuum Code
Bibb County, Alabama	1
Chilton County, Alabama	1
Calhoun County, Alabama	3
Hale County, Alabama	3
Lawrence County, Alabama	3
Tuscaloosa County, Alabama	3
Dallas County, Alabama	4
Talladega County, Alabama	4
Cherokee County, Alabama	6
Covington County, Alabama	6
Escambia County, Alabama	6
Franklin County, Alabama	6
Macon County, Alabama	6
Winston County, Alabama	6
Cleburne County, Alabama	8
Perry County, Alabama	8
Clay County, Alabama	9
Average	5

Table 17. 2013 rural-urban continuum codes, Chattahoochee-Oconee National Forests

County	Rural-Urban Continuum Code
Dawson County, Georgia	1
Jasper County, Georgia	1
Morgan County, Georgia	1
Catoosa County, Georgia	2
Walker County, Georgia	2
Floyd County, Georgia	3
Hall County, Georgia	3
Jones County, Georgia	3
Murray County, Georgia	3
Oconee County, Georgia	3
Oglethorpe County, Georgia	3
Whitfield County, Georgia	3
Gordon County, Georgia	4
Chattooga County, Georgia	6
Gilmer County, Georgia	6
Greene County, Georgia	6
Habersham County, Georgia	6
Lumpkin County, Georgia	6
Putnam County, Georgia	6
White County, Georgia	6
Rabun County, Georgia	7
Stephens County, Georgia	7
Banks County, Georgia	8
Fannin County, Georgia	8
Towns County, Georgia	9
Union County, Georgia	9
Average	5

Table 18. 2013 rural-urban continuum codes, Cherokee National Forest

County	Rural-Urban Continuum Code
Sullivan County, Tennessee	2
Carter County, Tennessee	3
Polk County, Tennessee	3
Unicoi County, Tennessee	3
Washington County, Tennessee	3
Greene County, Tennessee	4
McMinn County, Tennessee	4
Cocke County, Tennessee	6
Johnson County, Tennessee	6
Monroe County, Tennessee	6
Ashe County, North Carolina	7
Average	4

Table 19. 2013 rural-urban continuum codes, Kisatchie National Forest

Parish	Rural-Urban Continuum Code
Webster Parish, Louisiana	2
Grant Parish, Louisiana	3
Rapides Parish, Louisiana	3
Lincoln Parish, Louisiana	4
Vernon Parish, Louisiana	5
Claiborne Parish, Louisiana	6
Jackson Parish, Louisiana	6
Winn Parish, Louisiana	6
Natchitoches Parish, Louisiana	6
Bienville Parish, Louisiana	6
Henry County, Tennessee	7
Red River Parish, Louisiana	8
Stewart County, Tennessee	8
Average	5

Table 20. 2013 rural-urban continuum codes, Daniel Boone National Forest

County	Rural-Urban Continuum Code
Laurel County, Kentucky	5
Pulaski County, Kentucky	5
Estill County, Kentucky	6
Powell County, Kentucky	6
Clay County, Kentucky	7
Harlan County, Kentucky	7
Knox County, Kentucky	7
Perry County, Kentucky	7
Rockcastle County, Kentucky	7
Rowan County, Kentucky	7
Wayne County, Kentucky	7
Whitley County, Kentucky	7
Bath County, Kentucky	8
Jackson County, Kentucky	9
Lee County, Kentucky	9
Leslie County, Kentucky	9
McCreary County, Kentucky	9
Menifee County, Kentucky	9
Morgan County, Kentucky	9
Owsley County, Kentucky	9
Wolfe County, Kentucky	9
Average	8

Table 21. 2013 rural-urban continuum codes, Land Between the Lakes Research Natural Area

County	Rural-Urban Continuum Code
Trigg County, Kentucky	2
Calloway County, Kentucky	7
Marshall County, Kentucky	7
Lyon County, Kentucky	9
Livingston County, Kentucky	9
Average	7

Table 22. 2013 rural-urban continuum codes, El Yunque National Forest

Municipio	Rural-Urban Continuum Code
Canovanas Municipio, Puerto Rico	1
Ceiba Municipio, Puerto Rico	1
Fajardo Municipio, Puerto Rico	1
Humacao Municipio, Puerto Rico	1
Juncos Municipio, Puerto Rico	1
Las Piedras Municipio, Puerto Rico	1
Luquillo Municipio, Puerto Rico	1
Rio Grande Municipio, Puerto Rico	1
Naguabo Municipio, Puerto Rico	1
Average	1

Table 23. 2013 rural-urban continuum codes, National Forests in Florida

County	Rural-Urban Continuum Code
Lake County, Florida	1
Baker County, Florida	1
Leon County, Florida	2
Wakulla County, Florida	2
Santa County, Rosa County, Florida	2
Marion County, Florida	2
Okaloosa County, Florida	3
Walton County, Florida	3
Putnam County, Florida	4
Columbia County, Florida	4
Franklin County, Florida	6
Liberty County, Florida	8
Average	3

Table 24. 2013 rural-urban continuum codes, Francis Marion National Forest

County	Rural-Urban Continuum Code
Berkeley County, South Carolina	2
Charleston County, South Carolina	2
Dorchester County, South Carolina	2
Horry County, South Carolina	2
Georgetown County, South Carolina	4
Orangeburg County, South Carolina	4
Clarendon County, South Carolina	6
Williamsburg County, South Carolina	6
Average	4

Table 25. 2013 rural-urban continuum codes, George Washington National Forest

County	Rural-Urban Continuum Code
Warren County, Virginia	1
Amherst County, Virginia	2
Botetourt County, Virginia	2
Augusta County, Virginia	3
Frederick County, Virginia	3
Nelson County, Virginia	3
Rockingham County, Virginia	3
Hampshire County, West Virginia	3
Alleghany County, Virginia	6
Page County, Virginia	6
Rockbridge County, Virginia	6
Shenandoah County, Virginia	6
Hardy County, West Virginia	6
Bath County, Virginia	8
Highland County, Virginia	8
Monroe County, West Virginia	8
Pendleton County, West Virginia	8
Average	5

Table 26. 2013 rural-urban continuum codes, Jefferson National Forest

County	Rural-Urban Continuum Code
Bedford County, Virginia	2
Botetourt County, Virginia	2
Roanoke County, Virginia	2
Scott County, Virginia	2
Washington County, Virginia	2
Giles County, Virginia	3
Montgomery County, Virginia	3
Pulaski County, Virginia	3
Tazewell County, Virginia	5
Rockbridge County, Virginia	6
Wythe County, Virginia	6
Carroll County, Virginia	7
Smyth County, Virginia	7
Wise County, Virginia	7
Bland County, Virginia	8
Lee County, Virginia	8
Dickenson County, Virginia	9
Grayson County, Virginia	9
Average	5

Table 27. 2013 rural-urban continuum codes, National Forests in Mississippi

County	Rural-Urban Continuum Code
Benton County, Mississippi	1
Marshall County, Mississippi	1
Harrison County, Mississippi	2
Jackson County, Mississippi	2
Copiah County, Mississippi	2
Forrest County, Mississippi	3
Perry County, Mississippi	3
Jones County, Mississippi	4
Lafayette County, Mississippi	4
Adams County, Mississippi	5
Oktibbeha County, Mississippi	5
Scott County, Mississippi	6
George County, Mississippi	6
Pearl River Mississippi	6
Stone County, Mississippi	6
Tippah County, Mississippi	6
Union County, Mississippi	6

County	Rural-Urban Continuum Code
Lincoln County, Mississippi	6
Newton County, Mississippi	7
Wayne County, Mississippi	7
Yalobusha County, Mississippi	7
Chickasaw County, Mississippi	7
Pontotoc County, Mississippi	7
Smith County, Mississippi	8
Greene County, Mississippi	8
Issaquena County, Mississippi	8
Sharkey County, Mississippi	8
Amite County, Mississippi	8
Jefferson County, Mississippi	8
Wilkinson County, Mississippi	8
Jasper County, Mississippi	9
Franklin County, Mississippi	9
Choctaw County, Mississippi	9
Average	6

Table 28. 2013 rural-urban continuum codes, Croatan National Forest

County	Rural-Urban Continuum Code
Craven County, North Carolina	3
Jones County, North Carolina	3
Carteret County, North Carolina	4
Average	3

Table 29. 2013 rural-urban continuum codes, Nantahala and Pisgah National Forests

County	Rural-Urban Continuum Code
Haywood County, North Carolina	2
Henderson County, North Carolina	2
Buncombe County, North Carolina	2
Madison County, North Carolina	2
Burke County, North Carolina	2
Caldwell County, North Carolina	2
Watauga County, North Carolina	5
Jackson County, North Carolina	6
Transylvania County, North Carolina	6
McDowell County, North Carolina	6
Macon County, North Carolina	7
Mitchell County, North Carolina	7

County	Rural-Urban Continuum Code
Swain County, North Carolina	8
Yancey County, North Carolina	8
Avery County, North Carolina	8
Cherokee County, North Carolina	9
Clay County, North Carolina	9
Graham County, North Carolina	9
Average	6

Table 30. 2013 rural-urban continuum codes, Uwharrie National Forest

County	Rural-Urban Continuum Code
Randolph County, North Carolina	2
Davidson County, North Carolina	2
Montgomery County, North Carolina	6
Average	3

Table 31. 2013 rural-urban continuum codes, Ozark-St. Francis National Forests

County	Rural-Urban Continuum Code
Benton County, Arkansas	2
Crawford County, Arkansas	2
Madison County, Arkansas	2
Washington County, Arkansas	2
Pope County, Arkansas	5
Conway County, Arkansas	6
Franklin County, Arkansas	6
Logan County, Arkansas	6
Yell County, Arkansas	6
Phillips County, Arkansas	6
Baxter County, Arkansas	7
Johnson County, Arkansas	7
Lee County, Arkansas	7
Van County, Buren County, Arkansas	8
Marion County, Arkansas	9
Newton County, Arkansas	9
Searcy County, Arkansas	9
Stone County, Arkansas	9
Average	6

Table 32. 2013 rural-urban continuum codes, Ouachita National Forest

County	Rural-Urban Continuum Code
Perry County, Arkansas	2
Saline County, Arkansas	2
Sebastian County, Arkansas	2
Le Flore County, Oklahoma	2
Garland County, Arkansas	3
Hot Spring County, Arkansas	6
Howard County, Arkansas	6
Logan County, Arkansas	6
Scott County, Arkansas	6
Yell County, Arkansas	6
Ashley County, Arkansas	7
Polk County, Arkansas	7
McCurtain County, Oklahoma	7
Montgomery County, Arkansas	8
Pike County, Arkansas	9
Average	5

Table 33. 2013 rural-urban continuum codes, Sumter National Forest

County	Rural-Urban Continuum Code
Chester County, South Carolina	1
Edgefield County, South Carolina	2
Fairfield County, South Carolina	2
Laurens County, South Carolina	2
Saluda County, South Carolina	2
Union County, South Carolina	2
Greenwood County, South Carolina	4
Oconee County, South Carolina	4
Abbeville County, South Carolina	6
Newberry County, South Carolina	6
McCormick County, South Carolina	8
Average	4

Table 34. 2013 rural-urban continuum codes, National Forests and Grasslands in Texas

County	Rural-Urban Continuum Code
Montgomery County, Texas	1
Wise County, Texas	1
Newton County, Texas	2
Walker County, Texas	4
Angelina County, Texas	5
Nacogdoches County, Texas	5
Fannin County, Texas	6
Jasper County, Texas	6
Montague County, Texas	6
Tyler County, Texas	6
Houston County, Texas	7
Shelby County, Texas	7
Trinity County, Texas	7
Sabine County, Texas	8
San Jacinto County, Texas	8
San Augustine County, Texas	9
Average	6